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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,098	12/18/2006	W. Dennis Slafer	59380-050 (MCMK-004)	4357

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EXAMINER	
RIVERA, JOSHEL	
ART UNIT	PAPER NUMBER
1746	

NOTIFICATION DATE	DELIVERY MODE
06/23/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mweipdocket@mwe.com

Office Action Summary	Application No.	Applicant(s)	
	10/588,098	SLAFER, W. DENNIS	
	Examiner	Art Unit	
	JOSHEL RIVERA	1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-13 and 15-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-13 and 15-20* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 24, 2011 has been entered.

Claim Objections

2. Claim 11 is objected to because of the following informalities: claim 11 states the method steps for manufacturing pre-formatted linear optical data storage where a step of applying an optical recordable layer covering the pattern of optically readable embossments of the elongated linear polymer layer is performed before hardening the embossments and removing the elongated polymer layer from the drum. Since during the embossment and application of radiation the polymer is attached to the drum it is not possible to add an optical recordable layer on the embossments without removing the polymer from the drum. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 4 – 6, 9, 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 2003/0108710) in view of Watkins (US Patent 4,790,893).

5. With regards to claim 1 Coyle teaches an apparatus for manufacturing articles bearing patterned microstructures like optical film, information carrying substrate for optical recording media, CDs, DVDs or DVD-RWs (Abstract, paragraph 16 and paragraph 40), suggesting that the optical media comprises an optical recordable layer, that comprises a drum configured to receive an elongated linear polymer layer and for rotation about a rotation axis, and including a circumferential outer surface and a predetermined pattern of protrusions for embossing at least one pattern of optically readable embossments in the polymer rolled on the drum (Figure 1 item 26; paragraphs 13 and 14) and a radiation source configured to cause the pattern of optically readable embossments of the elongated linear polymer layer to solidify prior to the embossments being removed from the protrusions of the outer surface of the drum, where the radiation source is a UV light source (Figure 1 item 42; paragraphs 21 and 22).

6. Coyle teaches that the amount of force required to manufacture the optical media depends on the thickness of the coating and presents an example where the thickness of the substrate is of 5 mils or 127 microns (paragraph 19).

7. Coyle fails to explicitly disclose that the apparatus is capable of manufacturing optical media with a thickness between about 4 microns to about 100 microns and that the apparatus comprises one or more deposition sources configured to apply the optical recordable layer covering the pattern of optically readable embossments of the elongated linear polymer layer.

8. Watkins teaches an apparatus for manufacturing optical media (Abstract) where the thickness of the elongated linear polymer layer is between 0.1 mils to 20 mils or about 2.54 microns to about 508 microns (column 3 lines 26 – 31) and it comprises a deposition source for metallic disposition (Figure 1 item 22; column 6 lines 37 – 47) and would be capable of depositing an optical recordable layer.

9. It would have been obvious to one of ordinary skills in the art at the time of the invention to have used Watkins's deposition source in Coyle's apparatus and have the apparatus be capable of processing elongated linear polymer layers with a thickness between 4 microns and 100 microns, as suggested by Watkins. The rationale of having a thickness of about 4 microns to about 100 microns would have been that, as stated by Watkins, the thickness of 2.54 microns to 508 microns is preferred depending upon the nature of the image to be reproduced and the intended use of the replicates (column 3 lines 26 – 31). The rationale to use a deposition source would have been that, as stated by Watkins, in order to produce a multiplicity of information carriers the web undergoes

a step of metallic deposition where a thin coat of metal is deposited so as to conform to the imaged surface on the web (column 6 lines 37 – 47).

10. With regards to claims 2 and 4, the teachings of Coyle and Watkins are presented above. Additionally Coyle teaches that the system comprises a dispenser for dispensing a liquid between the outer surface of the drum and an elongated linear polymer layer rolled on the drum (Figure 1 the unit from where liquid item 18 is being poured from; paragraph 18), where the liquid is a polymeric material that can be hardened by radiation, the embossments are made in the liquid polymeric material and the radiation source provides radiation of the predetermined wavelength (paragraphs 18 and 21).

11. With regards to claim 5, the teachings of Coyle and Watkins are presented above. Additionally Coyle illustrates that the system comprises backing rollers pressing the elongated linear polymer layer against the drum (Figure 1 items 24 and 30).

12. With regards to claim 6, the teachings of Coyle and Watkins are presented above. Additionally Watkins states that the deposition is performed in vacuum where the web is received in the vacuum chamber to deposit the layer into the web (column 6 lines 48 – 65).

13. With regards to claim 9, the teachings of Coyle and Watkins are presented above. Additionally Coyle states that the patterned microstructures on the drum comprise tips and grooves (paragraphs 14 and 15) which would be considered ridges and bosses.

14. With regards to claim 10, the teachings of Coyle and Watkins are presented above. Additionally Coyle states that information carrying discs such as CDs and DVDs require microstructures in the form of spiral track of pits or grooves formed into one surface of a plastic disc or substrate and the information to be stored is encoded in the track of pits or grooves (paragraph 3), where one of ordinary skills in the art at the time of the invention would appreciate that the information would intrinsically include header information, servo and error correction information, pre-recorded digital information and pre-recorded analog information.

15. With regards to claim 20, the teachings of Coyle and Watkins are presented above. Coyle teaches that the polymeric liquid can also include various additives and fillers like UV stabilizer, silicas and solvents (paragraph 35). It would have been obvious to one of ordinary skills in the art at the time of the invention to have added a dye for embedding the optical recordable layer into the polymer layer simultaneous with the embossing. The rationale being that, since Coyle states that the liquid in the dispenser may contain additives and fillers like solvents (paragraph 35), one of ordinary skills in the art would appreciate that using a dye for embedding optical recordable layer into the polymer layer would reduce production time.

16. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 2003/0108710) in view of Watkins (US Patent 4,790,893) as applied to claims 1, 2, 4 – 6, 9 and 10 above, and further in view of Norden (WO 97/14142).

17. With regards to claim 3, the teachings of Coyle and Watkins are presented above. Coyle teaches that the polymeric liquid can also include various additives and fillers (paragraph 35). Coyle and Watkins fail to explicitly disclose using a chemical to soften the surface of the polymer layer.

18. Norden teaches a method of manufacturing an optical device (Abstract) where in an embodiment a chemical to soften the polymer layer is used prior embossing and then using heat in order to remove the softening chemical after embossing (column 5 lines 25 – 31).

19. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a softening chemical on the surface of the polymer layer, as suggested by Norden, in Coyle and Watkins's apparatus. The rationale being that one of ordinary skills in the art would appreciate that in order to create an impression on a hard plastic surface would require large amount of force and energy, where using a chemical to soften the surface prior embossing saves money and time by reducing the amount of force required.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 2003/0108710) in view of Watkins (US Patent 4,790,893) as applied to claims 1, 2, 4 – 6, 9 and 10 above, and further in view of Shikichi (US Patent 5,475,660).

21. With regards to claim 8, the teachings of Coyle and Watkins are presented above. Coyle and Watkins fail to explicitly disclose that the apparatus comprises an optical head array adapted to write recording marks in the optical recordable layer over

the pattern of optically readable embossments and where the optical head array include auto-focus and servo-tracking functionality.

22. Shikichi teaches an optical information recording-reproducing apparatus (Abstract) used for recording information into optical media with auto-focus and servo-tracking or auto-tracking functionality (column 1 lines 11 – 21 and 24 – 60). It would have been obvious to one of ordinary skills in the art at the time of the invention to have used an optical head array to write recording marks in the optical recordable layer, the head array comprises auto-focus and servo-tracking functionality, as suggested by Shikichi, in Coyle and Watkins's system. The rationale being that, as stated by Shikichi, it is a common method used for recording information in optical media and auto-tracking and auto-focus functionality are required in order to control the irradiation position of the light spot on the optical media and to apply a light beam as a stable minute spot irrespective of warps of the optical media and mechanical errors (column 1 lines 24 – 60).

23. Claims 11 – 13, 15 and 17 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 2003/0108710) in view of Watkins (US Patent 4,790,893), Pan et al (US Patent 5,077,181) and Norden (WO 97/14142).

24. With regards to claim 11 Coyle teaches an apparatus for manufacturing articles bearing patterned microstructures like optical film, information carrying substrate for optical recording media, CDs, DVDs or DVD-RWs (Abstract, paragraph 16 and paragraph 40), suggesting that the optical media comprises an optical recordable layer,

that comprises a drum configured to receive an elongated linear polymer layer and for rotation about a rotation axis, and including a circumferential outer surface and a predetermined pattern of protrusions for embossing at least one pattern of optically readable embossments in the polymer rolled on the drum (Figure 1 item 26; paragraphs 13 and 14) and a radiation source configured to cause the pattern of optically readable embossments of the elongated linear polymer layer to solidify prior to the embossments being removed from the protrusions of the outer surface of the drum, where the radiation source is a UV light source (Figure 1 item 42; paragraphs 21 and 22).

25. Coyle teaches that the amount of force required to manufacture the optical media depends on the thickness of the coating and presents an example where the thickness of the substrate is of 5 mils or 127 microns (paragraph 19).

26. Coyle fails to explicitly disclose that the apparatus is capable of manufacturing optical media with a thickness between about 4 microns to about 100 microns and that the apparatus comprises one or more deposition sources configured to apply the optical recordable layer covering the pattern of optically readable embossments of the elongated linear polymer layer.

27. Watkins teaches an apparatus for manufacturing optical media (Abstract) where the thickness of the elongated linear polymer layer is between 0.1 mils to 20 mils or about 2.54 microns to about 508 microns (column 3 lines 26 – 31) and it comprises a deposition source for metallic disposition (Figure 1 item 22; column 6 lines 37 – 47) and would be capable of depositing an optical recordable layer.

28. It would have been obvious to one of ordinary skills in the art at the time of the invention to have used Watkins's deposition source in Coyle's apparatus and have the apparatus be capable of processing elongated linear polymer layers with a thickness between 4 microns and 100 microns, as suggested by Watkins. The rationale of having a thickness of about 4 microns to about 100 microns would have been that, as stated by Watkins, the thickness of 2.54 microns to 508 microns is preferred depending upon the nature of the image to be reproduced and the intended use of the replicates (column 3 lines 26 – 31). The rationale to use a deposition source would have been that, as stated by Watkins, in order to produce a multiplicity of information carriers the web undergoes a step of metallic deposition where a thin coat of metal is deposited so as to conform to the imaged surface on the web (column 6 lines 37 – 47).

29. Watkins's deposition source deposits a metallic coating like aluminum. Watkins fails to explicitly disclose using a material that would be capable of being used in a DVD-RW device as an optical recordable layer.

30. Pan teaches using antimony-tin alloys as an optically recordable layer (Abstract). It would have been obvious to one of ordinary skills in the art at the time of the invention to have used antimony-tin alloys in Coyle and Watkins's method. The rationale being that, as stated by Pan, antimony-tin alloys are well known to have been used as erasable optical recording layers (column 1 lines 33 – 67).

31. Coyle teaches that the polymeric liquid can also include various additives and fillers (paragraph 35). Coyle, Watkins and Pan fail to explicitly disclose using a chemical to soften the surface of the polymer layer.

32. Norden teaches a method of manufacturing an optical device (Abstract) where in an embodiment a chemical to soften the polymer layer is used prior embossing and then using heat in order to remove the softening chemical after embossing (column 5 lines 25 – 31).

33. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a softening chemical on the surface of the polymer layer, as suggested by Norden, in Coyle, Pan and Watkins's method. The rationale being that one of ordinary skills in the art would appreciate that in order to create an impression on a hard plastic surface would require large amount of force and energy, where using a chemical to soften the surface prior embossing saves money and time by reducing the amount of force required.

34. With regards to claim 12, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Norden teaches an embodiment where a chemical to soften the surface of the polymer layer is used prior embossment (column 5 lines 25 – 29).

35. It would have been obvious to one of ordinary skills in the art at the time of the invention to use a softening chemical on the surface of the polymer layer, as suggested by Norden, in Coyle, Pan and Watkins's method. The rationale being that one of ordinary skills in the art would appreciate that in order to create an impression on a hard plastic surface would require large amount of force and energy, where using a chemical to soften the surface prior embossing saves money and time by reducing the amount of force required.

36. With regards to claim 13, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Coyle teaches that the system comprises a dispenser for dispensing a liquid between the outer surface of the drum and an elongated linear polymer layer rolled on the drum (Figure 1 the unit from where liquid item 18 is being poured from; paragraph 18), where the liquid is a polymeric material that can be hardened by radiation, the embossments are made in the liquid polymeric material and the radiation source provides radiation of the predetermined wavelength (paragraphs 18 and 21).

37. With regards to claim 15, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Coyle states that information carrying discs such as CDs and DVDs require microstructures in the form of spiral track of pits or grooves formed into one surface of a plastic disc or substrate and the information to be stored is encoded in the track of pits or grooves (Coyle: paragraph 3) while Norden teaches that the reflection layer has localized level variations (Norden: column 7 lines 19 – 20), which can be achieved by endowing the registration layer with a pattern of pits or bumps what can be represent “0” and “1” (Norden: column 7 lines 31 – 34, column 8 lines 1 – 6).

38. With regards to claim 17, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Coyle states that the patterned microstructures on the drum comprise tips and grooves (Coyle: paragraphs 14 and 15) while Norden teaches that the embossed forms are usually pits of constant width but variable length (Norden: column 4 lines 14 – 15, lines 18 – 23), which would intrinsically comprise of lands and

grooves, and these marks are in an helical path (Norden: column 4 lines 18 – 23) which would be wobbled.

39. With regards to claim 18, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Coyle states that information carrying discs such as CDs and DVDs require microstructures in the form of spiral track of pits or grooves formed into one surface of a plastic disc or substrate and the information to be stored is encoded in the track of pits or grooves (paragraph 3), where one of ordinary skills in the art at the time of the invention would appreciate that the information would intrinsically include header information, servo and error correction information, pre-recorded digital information and pre-recorded analog information.

40. With regards to claim 19, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Norden teaches that a registration layer is provided on the substrate and that the embossing is done under pressure (column 3 lines 21 – 24). Intrinsically if the embossing is done under pressure on the registration layer, the layer would be embedded into the polymer layer as the embossments are created.

41. It would have been obvious to one of ordinary skills in the art at the time of the invention to have the optical recordable layer be embedded into the polymer layer simultaneous with the embossment, as suggested by Norden, in Coyle, Watkins and Pan's method. The rationale being that, as stated by Norden, it forms a pattern of low and high surfacial regions representing a collection of binary data (column 3 lines 21 – 24).

42. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coyle et al (US 2003/0108710) in view of Watkins (US Patent 4,790,893), Pan et al (US Patent 5,077,181) and Norden (WO 97/14142) as evidenced by Rosen et al (US Patent 5,627,817).

43. With regards to claim 16, the teachings of Coyle, Watkins, Pan and Norden are presented above. Additionally Norden teaches using a dielectric layer (column 7 lines 9 – 10), a reflection layer (column 7 lines 27 – 28) and the use of squarylium dye (column 7 lines 1 – 4) that, as stated by Rosen, its functionally equivalent to a phase change layer (column 1 lines 21 – 40).

44. It would be obvious to one of ordinary skills in the art at the time of the invention to have used a dielectric layer, reflection layer and phase change layer, as suggested by Norden, in Coyle, Watkins and Pan's method .The rationale being that one of ordinary skills in the art would appreciate that by applying these layers the properties of the optical medium would be enhanced.

Response to Arguments

45. Applicant's arguments with respect to claims 1 – 6, 8 – 13 and 15 – 20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHEL RIVERA whose telephone number is (571)270-7655. The examiner can normally be reached on Monday - Thursday 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katarzyna Wyrozebski can be reached on (571) 272-1127. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. R./
Examiner, Art Unit 1746

/KAT WYROZEBSKI/
Supervisory Patent Examiner, Art Unit 1746